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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,086	01/28/2004	Katsuya Sakayori	123809.02	9816

25944 7590 02/08/2006

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EXAMINER	
GOFF II, JOHN L	
ART UNIT	**PAPER NUMBER**
1733	

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/765,086	SAKAYORI, KATSUYA	
	Examiner	Art Unit	
	John L. Goff	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/835,080.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/28/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 11 and 12 are objected to because of the following informalities: Claim 11 requires "a minimum value of the storage modulus of not more than 10^6 Pa". For clarity applicants should delete "minimum" and insert therein - - maximum - - as 10^6 Pa is the maximum storage modulus. Claim 12 should be amended in a like manner. In claim 11, lines 8 and 9 delete "to one another". In claim 11, line 9 after "Tg or above" insert - - of the thermoplastic resin layer - -. These changes are consistent with that required in claims 13 and 14 and are made for clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 102/103

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 11 and 12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Abe et al. (EP 605112).

Abe et al. disclose a process for producing a laminate useful in the electronics industry comprising providing a polyimide core insulating layer, applying a thermoplastic polyimide layer to at least one side (in the z-plane) of the polyimide core insulating layer, applying a metal layer to a side of the thermoplastic polyimide layer, and thermocompressing the layers at a temperature at or above the glass transition temperature of the thermoplastic polyimide layer to form a laminate. Abe et al. teach the inclusion of the thermoplastic polyimide layer forms a laminate including a polyimide core insulating layer and a metal layer having high peel strength (Page 3, lines 43-45 and Page 6, lines 1-19 and Page 11, lines 46-52).

As to the thermoplastic polyimide layer having a maximum storage modulus of not more than 10^6 Pa at or above the glass transition temperature of the layer, Abe et al. teach the thermoplastic polyimide layer has a glass transition temperature ranging from 180 °C to 280 °C and a storage modulus ranging from 10 to 10^7 Pa at 250 °C to 300 °C (Page 3, lines 49-54). In particular, Example 1 of Abe et al. specifically show thermocompressing the laminate at 270 °C wherein the thermoplastic polyimide layer has a glass transition temperature of 200 °C and a storage modulus of 4.0×10^3 Pa at 250 °C, and thus, the claim limitations appear to be met. In any event, it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the particular values for the glass transition temperature and storage modulus of the thermoplastic polyimide layer and the thermocompression temperature for the laminate within the ranges given by Abe et al. as a function of the peel

strength of the laminate as doing so would have required nothing more than ordinary skill and routine experimentation.

Claim Rejections - 35 USC § 103

5. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al. in view of Shiotani et al. (U.S. Patent 5,741,598) and Ishikawa (JP 60102630 and see also the abstract).

Abe et al. is described above in full detail. Abe et al. teach the laminate is useful in the electronics industry, but Abe et al. do not specifically describe using the laminate to form an electronic circuit. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the laminate taught by Abe et al. in a well known and conventional way such as for forming a circuit board as shown for example by Shiotani et al. as only the expected results would be achieved wherein forming the electronic circuit on the circuit board would have been performed in any well known manner such as by photoetching as shown for example by Ishikawa.

Shiotani et al. are exemplary of a laminate useful for forming circuit boards wherein the laminate comprises a polyimide core insulating layer, a thermoplastic polyimide layer on at least one side (in the z-plane) of the polyimide core insulating layer, and a metal layer on a side of the thermoplastic polyimide layer, it being noted the laminate is formed by thermocompressing the layers at a temperature at or above the glass transition temperature of the thermoplastic polyimide layer. Shiotani et al. teach the inclusion of the thermoplastic polyimide layer forms a laminate including a polyimide core insulating layer and a metal layer having high peel strength

(Column 1, lines 11-26 and 52-55 and Column 2, lines 43-59 and Column 5, lines 44-52 and Example 1). Ishikawa is an example of the well known technique of photoetching a board comprising an insulating layer and a metal layer to form a circuit board wherein photoetching includes forming a photosensitive resin layer on a surface of the metal layer and patterning the photosensitive resin layer and metal layer to form an electronic circuit (See the abstract).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John L. Goff